

ABSTRACT OF THE DISCLOSURE

Simple and complex "heat pipes" are fabricated using solid, freeform fabrication techniques. The heat pipes are surrounded by materials having other desired physical properties such as coefficient of thermal expansion, stiffness, etc. According to one embodiment of the invention, high thermal conductivity foils, composed of materials
5 such as copper or aluminum, are sandwiched between materials having desirable thermal expansion properties to provide components having high cooling rates and dimensional stability. Layer thickness, alloy and thickness are variable, and can be further altered by stacking varying numbers of layers of a given composition prior to incorporating a second material. The object size and design can range from a few millimeters on a side
10 up to large components designed to manage heat flow in entire assemblies. In addition to completely featureless feedstocks such as wires, meshes, perforated foils, and continuous foils, it may be useful occasionally to use feedstocks in which certain features have been stamped.